

Application No. 09/929,703

REMARKS

Favorable reconsideration and allowance of the subject application are respectfully requested. Claims 1-3, 5, 7, 10, 13-14, and 16-32 are pending in the present application, with claims 1, 13, and 16 being independent. Claim 16 has been amended to address a lack of antecedent issue. Claim 13 has been amended to further define the present invention.

Drawings

The Examiner objected to the drawings under 37 CFR 1.83(a), stating that "the features of the first and second transceivers communicating must be shown or the feature(s) cancelled from the claims." (Office Action: pages 2-3.) Applicants respectfully traverse this objection, and submit that the features recited by the Examiner should not be required to be illustrated. Applicants submit that, as prescribed in 37 CFR 1.83(a), the showing of claimed features is not required if a detailed illustration is not essential for a proper understanding of the invention. Applicants submit that one of ordinary skill in the art would not find illustration of the features recited in claim 23 essential in order to understand the invention. Accordingly, Applicants respectfully request the Examiner to withdraw the objection to the drawings.

If upon reconsideration of the objection the Examiner decides to maintain this position, Applicants respectfully request the Examiner to contact the undersigned at the telephone number below.

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Claim Rejections under 35 U.S.C. §112

The Examiner rejected claim 23 under 35 U.S.C. §112, second paragraph, as being indefinite because "said additional information" lacked sufficient antecedent basis. Applicants have amended claim 16 to address this issue and respectfully request the Examiner withdraw the rejection.

Claim Rejections under 35 U.S.C. §103

The Examiner rejected claims 1-3, 5, 13, 16-19, 21-22, 24-25, 27-30, and 32 under 35 U.S.C. §103, as being unpatentable over Nikula et al (US7031334). Applicants submit the Examiner has failed to establish a *prima facie* case of obviousness and respectfully traverse the rejection.

Applicants submit the Examiner has failed to establish a *prima facie* case of obviousness and traverse the rejection.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

See MPEP §2143 (emphasis added).

Applicants submit that Nikula fails to teach or suggest all of the features recited in claim 1, and that the Examiner failed to provide adequate motivation to support the obviousness rejection.

Nikula merely teaches signaling information which is conveyed from a transmitting device to a receiving device in a cellular radio network where user data

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transmission takes place on a traffic channel in discrete transmission bursts consisting of consecutive symbols. A piece of signaling information is formatted into symbols which are transmitted as a block of consecutive symbols in a certain transmission burst of a traffic channel. It is also indicated within said certain transmission burst that it contains symbols carrying signaling information (Abstract).

Specifically, Nikula teaches that transmitting device in a cellular radio network typically has a certain upper limit of allowed transmission power for each transmission burst. If the embodiment of FIG. 1 (allocation of complete bursts to fast signaling information) is used, it is possible to use a higher transmission power to transmit the bursts stolen to the use of fast signaling information than the regular bursts. This is due to the fact that the nonlinearity of a transmission power amplifier (especially in a base station) will become more evident if a multilevel phase modulation method is used than with a binary modulation method (Binary Phase Shift Keying), imposing a mandatory 2-4 dB back-off at the highest 8-PSK transmission power levels (c. 6, II. 36-47).

Nikula further discloses the rotation shown in Fig. 1 is related to the modulation; in that an assembled transmission frame 401 in the form which it has in a transmitting device before modulation onto a carrier frequency. In the middle of the transmission burst there is a training sequence which consists of a string of known consecutive symbols. The schematic indication ABABAB . . . has been used for the known form of the training sequence. The modulation step is accompanied with a phase rotation which may be an inherent consequence of the applied modulation algorithm or which may be introduced deliberately as an addition to the actual modulation. An exemplary way of applying phase rotation is the following. According to the 8-PSK modulation principle

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there are eight allowed phase angle values for the modulated signal, e.g. 0, $+\text{pi}/4$, $+\text{pi}/2$, $+\text{pi}/4$, pi . Each of them corresponds to a particular set of three consecutive bits in the data stream to be transmitted: for example the bit combination (0,1,0) corresponds to a phase angle value $+\text{pi}/2$. A constant phase rotation by X radians may be specified so that each symbol generated according to the basic modulation principle will be additionally rotated by X radians in the phase space. For example defining $X=+3\text{.pi}/8$, the final phase modulated symbol that will represent the bit combination (0,1,0) in the transmitted signal will have the phase angle value $+7\text{.pi}/8$ (c. 5, ll. 33-55).

Nikula further discloses taking advantage of the phase rotation characteristics associated with the different modulation methods by using the rotation of the constellation points in the phase space as an indication of the transmission burst contents. Each transmission burst contains a training sequence the symbol content of which is known, so a receiver can use the received form of the training sequence to find out a correct phase de-rotation angle. Associating a certain unique phase rotation angle to each modulation method is thus a feasible way of conveying a piece of simple modulation-related information (c. 3, ll. 2-12).

However, Nikula fails to teach, at least, "a different modulation index is assigned to each one of the information symbols, the information symbols conveying data, and the modulation indices identifying a type of the conveyed data based on an amplitude of the amplitude modulation index," as recited in claim 1 (emphasis added); "at least one characteristic physical variable of the carrier signal is amplitude modulated in

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accordance with the different modulation indices assigned respectively to the information symbols that are modulated onto the carrier signal," as recited in claim 13; and "wherein said modulation indices respectively assigned to said information symbols identify said information items based on an amplitude of each of said modulation indices," as recited in claim 16.

The Examiner asserts that Nikula is not "explicit about the modulation technique... ." Applicants disagree, and submit that Nikula teaches methods and systems which use phase modulation. For example, Nikula teaches that the "modulation step is accompanied with a phase rotation which may *[sic]* an inherent consequence of the applied modulation algorithm or which may be introduced deliberately as an addition to the actual modulation," (c. 5, ll. 39-43), emphasis added.

Moreover, the Examiner states, in rejecting claim 1 under 35 U.S.C. §103, that "one of ordinary skill in the art would clearly recognize that instead of the phase modulation, an amplitude modulation technique could be used ... instead of the phase or frequency which is very simple to implement." Applicants respectfully submit that this conclusory statement made by the Examiner is not a proper basis to substantiate an obviousness rejection.

Regarding claim 13, Applicants further submit that Kim, as applied by the Examiner, fails to cure the deficiencies of Nikula.

Accordingly, Nikula, using phase modulation, is distinguished from the feature quoted above in claims 1, 13, and 16. Because Nikula fails to explicitly teach amplitude modulation, Applicants respectfully request that the Examiner withdraw the rejection.

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Independent claim 16 recites, in this respect, related subject matter to claim 1, and are at least allowable for similar reasons provided above in the arguments for the allowability of claim 1.

The Examiner rejected claims 7 and 20 under 35 U.S.C. §103, as being unpatentable over Nikula et al (US7031334) and further in view of Fonseka (IEEE ELECTRONICS LETTERS 2nd September 1999 Vol. 35 No.18); the Examiner rejected claim 10 under 35 U.S.C. §103, as being unpatentable over Nikula et al (US7031334) further in view of Fujiwara (US 4794649); the Examiner rejected claim 14 under 35 U.S.C. §103, as being unpatentable over Nikula and Fujiwara, and further in view of Ricci et al. (US 6463039); the Examiner rejected claim 31 under 35 U.S.C. §103, as being unpatentable over Nikula and further in view of Ricci; the Examiner rejected claim 26 under 35 U.S.C. §103, as being unpatentable over Nikula and further in view of Landolsi (US 6570842).

These rejections are respectfully traversed insofar as they pertain to the presently pending claims. Applicants submit the references cited above in support of the rejection of the dependent claims, as applied, fail to cure the deficiencies of Nikula as applied in the independent claims. The depended claims are therefore allowable at least by virtue of their dependency from their respective independent claims.

CONCLUSION

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse

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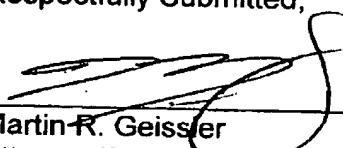
action, it is respectfully requested that the Examiner telephone Martin R. Geissler, Applicants' Attorney at 1.703.621.7140 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3828 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Date: January 8, 2007

Respectfully Submitted,



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